

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ORIGINAL

APPLICATION TO REVISE A COAL MINING PERMIT

1. Applicant's Name The Ohio Valley Coal Company
Address 56854 Pleasant Ridge Road
City Alledonia State Ohio zip 43902
Telephone No. 614 - 926 - 1351

2. Permit No. D-0360 . Revision R-0360-2

3. Section of mining and reclamation plan to be revised:

Addendum to Part 3, Page 26, J (old permit form)

4. Describe in detail the proposed revision and submit any necessary drawings, plans, maps, etc.:

Deletion of details for maintaining the Ogilbee Dairy Farm in operation.

5. Describe in detail the reason for requesting the revision:

Through contract, the Ogilbee family has opted to maintain the dairy operation themselves during the time that the longwall mining passes beneath the farm buildings.

6. Will this revision constitute a significant alteration from the mining and reclamation operations contemplated in the original permit? Yes, X No.

(Note: refer to paragraph (E) (2) of 1501:13-4-06 of the Ohio Administrative Code for information concerning significant revisions.)

If "yes," complete the following items 7 through 9.

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7. In the space below give the name and address of the newspaper in which the public notice is to be published.
8. In the space below give the text of the public notice that is to be published.
9. In the space below give the name and address of the public office where this application is to be filed for public viewing.

I, the undersigned, a responsible official of the applicant, do hereby verify the information contained in this revision request is true and correct to the best of my information and belief.

David L. Bartsch

January 9, 1991

Print Name

Date

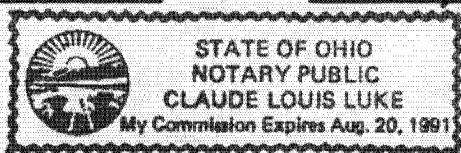
David L. Bartsch

Project Engineer

Signature

Title

Sworn before me and subscribed in my presence
this 9th day of JANUARY, 1991.



Claude Louis Luke
Notary Public

FOR DIVISION USE ONLY)

This request is hereby approved.

Tom L. Springer for M. Vishniura
Chief, Division of Reclamation

1-14-91
Date

ANTICIPATED EFFECTS OF PLANNED SUBSIDENCE

General

The anticipated surface effects of subsidence during and following coal extraction by the longwall method at the Powhatan No. 6 Mine are related to the following movements of the ground surface:

1. Vertical subsidence
2. Horizontal movement

The combination of vertical and horizontal movements of points on the ground surface leads to tensile or extension and compression strains from curvature of the ground surface and tilt. Extension and compression of the ground surface, in the direction of the movement of the longwall face, occur as the face moves in the direction of mining. The extension and compression effects develop after passage of the longwall face. The surface curvature, with resulting extension and compression, and the tilt near the ends of a mined panel and along the sides of a mined panel, represent the permanent effects of subsidence.

Background

The dip of the coal is 19 ft per mile at South 63 Degrees East. The strike is North 27 Degrees East. The panel dimensions are 600 to 800 ft wide and 5,600 to 5,900 ft long. The gates are approximately 200 ft wide between panels. The coal thickness to be extracted is approximately six (6) ft. There is approximately 50 percent of the overburden classified as hard rock.

Time of Subsidence

The surface effects of mining occur at times generally related to the advance of the longwall face.

1. Movements which develop over a panel being mined with passage of the face: these represent the most significant movements and are generally complete within three (3) months of passage of the face.
2. Movements which occur over a previously mined panel as an adjacent panel is mined: such superincumbent movements are relatively small compared to the movements above the panel that is being mined.

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3. Movements over a long period of time due to consolidation of the gob and time dependent stress readjustment: long-term subsidence of the ground surface is not expected to be significant.

Predicted Movements

The surface movements indicated below are based on measurements of subsidence effects reported in "Characterizations of Subsidence over Longwall Mining Panels - Eastern Coal Province," by Dames and Moore.¹ The program of measurement was performed over Panels 2, 3, and 4 off 3 North at the Quarto Mining Company, Powhatan No. 4 Mine, during 1981 and 1982 as Panels 3 and 4 were mined. Similar movements, as a result of future mining, are expected at the Powhatan No. 6 Mine.

1. The maximum surface subsidence occurred near the center of the panel being mined and was measured at about 65% of the extracted seam thickness or about 4.7 feet. (Extracted seam thickness was about 7.25 feet.) The maximum angle of draw was about 50 degrees on the panel end, but the average is approximately 30 degrees.
2. An additional surface subsidence of about 10% of the extracted seam thickness (0.7 feet) occurred above Panel No. 3 within the limits of the angle of draw of Panel No. 4 when Panel No. 4 was mined.
3. The maximum tilt measured on the ground surface was about 1.5 degrees, in the direction of face movement.
4. The greatest tensile strain measured on the ground surface was 0.003 inch/inch, and the maximum compressive strain measured was 0.008 inch/inch.
5. Horizontal movements of up to 2 feet were measured.

Effect on Surface Facilities

1. Tension cracking of the ground surface may occur at the sides and ends of a longwall panel. These cracks in the surface may vary in width from hairline, up to 1-1/2 inches wide. In some instances, cracks have been observed to be 6 in. to over 1 ft wide.
2. Structures situated over a panel may be damaged due to subsidence. The damage to be expected may involve cracking of plaster, cracking between concrete block or brick. Cracks in these structures may close after subsidence is complete.

¹ "Demonstration of Subsidence Monitoring Systems"
Dames & Moore, 1981

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3. Underground utility lines (water and gas) may be broken by tensile strains of the magnitudes measured in the DOE study.
4. Poles and towers for electric power lines may tilt due to subsidence. The maximum tilt of 1.5 degrees at the ground surface measured in the DOE study would produce a calculated, horizontal movement of about one (1) foot at a distance of forty (40) feet above the ground surface. Depending on pole spacing and direction of movement, there is a slight risk that wires may be broken. Longwall mining has been conducted in other areas beneath towers, and towers have subsided without complication.
5. Surface slumping may occur due to subsidence where relatively steep slopes with landslide prone soils exist. Some surface slumping was reported during the DOE study previously cited.
6. The effect of the longwall mining on surface water bodies is somewhat unpredictable. Ponds or streams may become partially dry temporarily as a result of subsidence-induced surface cracks.

Remedial Measures

1. In the event that roadway surfaces are damaged by cracks resulting from subsidence due to mining, OVCC, at the request of the applicable regulatory authority, will repair the surface to pre-mining conditions.
2. OVCC will mail written notice to owners and occupants of surface property or structures of OVCC intent to mine under such property or structures at least six months prior to any mining by OVCC under their property. Notwithstanding its mining rights and without waiving nor releasing any of its rights, OVCC will offer to repair or compensate for damages to all structures and facilities caused by OVCC's mining operations. A pre-subsidence survey of all structures to be undermined will be conducted by OVCC personnel and will be used to determine the condition of the structures and facilities prior to the mining. This survey may include, but not be limited to: still and video photography, land surveying, making various measurements, interviewing landowners, tenants, or other individuals, and making various drawings. Refusal of the landowner to allow a pre-subsidence survey will release OVCC from the requirement to conduct the survey. This survey will be performed in accordance with Underground PPD 89-2.

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3. Notwithstanding its mining rights and without waiving nor releasing any of its rights, OVCC will offer to repair or pay for repairs for damage caused to surface lands by OVCC's mining operations if the damage reduces the foreseeable use or value of the surface lands. If such damage occurs, OVCC will submit to the Chief within thirty days after the damage occurs:
 - a. Site specific plans for the repair or mitigation of the damage, including a time schedule for performance of the remedial action.
 - b. A request for more time to prepare such plans; or
 - c. Written notification that OVCC believes that repair or restoration measures are not technologically feasible. If repair or restoration measures are not desired by the owner of a structure or if repair or restoration measures are not technologically feasible, other mitigatory measures will be described.
4. Utility companies, which own transmission lines, pipe lines, or other sensitive structures in the permit area, will be notified at least six (6) months prior to any mining under such structures by OVCC. OVCC, subject to its mining rights, will offer to repair such structures.
5. Damage to surface land will be repaired by local contractors. As surface damage occurs, the landowner will be notified and permission to repair the damage will be requested. Surface cracks will usually be repaired by the following method: After the length of the subsidence crack has been determined, a bulldozer will be used to cut a V-shaped trench. The depth of this trench will be approximately 8-10 feet or down to bedrock. During the excavation topsoil will be segregated from subsoil and rock. Upon completion of the excavation, the material will be compacted using the track of the bulldozer. Once the soil material has been replaced, the area will be reclaimed to ODNR specifications.

OVCC will employ a program to monitor surface cracking and settling resulting from subsidence. Areas being mined will be inspected at various intervals, ranging from daily to weekly. These areas will be visually inspected for any subsidence related problems. If a problem is found, the landowner will be notified immediately.

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In most cases, surface cracks are expected to open and close relatively rapidly, however, some surface cracks may take weeks to close. For this reason, most cracks will not be repaired until OVCC determines that the cracks are not going to close themselves. If the surface cracks are in an area that is commonly traveled by man or livestock, the cracks will be repaired immediately. Surface cracking that is found in areas not commonly traveled, may be marked by brightly colored tape. This tape alerts anyone in the area of the depression or opening. If the cracks do not close within the period of time OVCC determines is adequate, a contractor will repair the cracks.

Monitoring of these areas will continue for up to six months after mining, and if the cracks reopen, they will once again be repaired. Monitoring of panel areas before mining consists of visual inspection or aerial photo review. These areas are being inspected before mining, due to the water monitoring program which starts one year prior to mining.

OVCC's subsidence program will adequately assure that the value and reasonably foreseeable use of the surface land is maintained.

6. The Ogilbee dairy farm is located directly over a longwall panel. The dairy barn and milk house will experience subsidence of approximately 2 ft from its original elevation. Some surface and structural damage is anticipated. The magnitude of this damage is directly related to the extraction rate. If the rate is slow, more severe damage (such as concrete cracking, differential settlement of corners, etc.) will occur. In some cases, it has been observed that one end of a structure will be in tension while other parts are stationary as the subsidence wave moves through the structure. In fact, all structures experience a series of tension/compression strains that causes some damage. It is the intention of OVCC to remove the coal under all structures, including the dairy barn and milk house on the Ogilbee (and other) dairy farm(s) as rapidly as possible to minimize damage.

In the case of the Ogilbee barn and milk house, they are located over the center of the panel and are not expected to receive significant horizontal or tensile forces normally associated with panel edges. Some damage, as described above, is anticipated and will be repaired as described below.

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Prior to undermining the dairy structures, most particularly, the barn/milk house, OVCC will prepare the structure at OVCC's expense as follows:

A. A water supply line from the new County water line will be installed prior to mining in order to provide water on a continuous basis. This water line will be installed in such a manner that subsidence will not interrupt the flow of water.

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

B. ~~The electrical supply to the barn/milk house will be inspected and, if necessary, changed to permit the downward movement of the structure.~~

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

C. ~~The framework structure of the barn will be inspected to determine its ability to withstand the forces caused by subsidence. Weak members will be reinforced (with materials of similar construction if practical). Temporary reinforcement measures will be used where practical in order to return the barn to pre-mining conditions after mining is complete.~~

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

D. ~~The milking system will be inspected to determine its ability to withstand the forces caused by subsidence. Rigidly held lines will be fastened with flexible couplings to permit movement of the barn and still permit the normal flow of milk to the bulk tank. All modifications will comply with State and County Health Department guidelines.~~

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

E. ~~The bulk milk tank will be placed on a low-profile platform that permits easy, ongoing leveling. The tank will be re-certified after this change is made at the expense of OVCC. The platform will be arranged to maintain adequate clearance over the tank.~~

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

F. ~~The compressors and coolant lines for the bulk tank will be inspected and retrofitted with flexible connections to permit the downward movement of the structure.~~

During mining under the barn/milk house, OVCC will provide the following services at OVCC's expense:

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY

A. ~~The barn/milk house will be inspected at least 2 hours prior to milking for damage that may impede normal milking operations. Minor repairs will be made to insure that the milking processes will occur normally. Specifically, the barn and related facilities (e.g., stanchions) will be maintained in~~

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usable condition. Milk lines will be inspected for breakage and flow direction and any repairs will be made prior to milking. Compressors and refrigerant lines will be inspected and repairs will be made if necessary. The bulk tank will be re-leveled and re-certified prior to pick-up of the milk at OVCC's expense. The integrity of both the water and the electrical systems will be inspected and repaired prior to milking. Sufficient numbers of personnel qualified to do the inspection and repair work will be present before the milking begins. During milking, any necessary repairs will be made to allow the milking process to continue.

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY

B. Following the milking, any additional repairs to the facilities not needed for milking will be completed. The requirements of the County and State Health Service Departments for a Grade A dairy farm will be maintained during subsidence at OVCC's expense, including the repair of doors, the barn floor, the barn cleaner, and the water system. If the barn cleaner cannot be maintained in operation, manual labor will be used to keep the barn clean.

ITEM REMOVED DUE TO
CONTRACT WITH OGILBEE
FAMILY.

C. Prior to the introduction of farm equipment into fields that have been undermined, OVCC will inspect the field for cracks or slips. Repairs needed (to maintain access into the fields) will be made at appropriate times. Crop lands damaged by subsidence will be repaired at appropriate times to permit harvest or cultivation without damage to personnel or equipment. Lost or damaged crops will be replaced in kind by OVCC at OVCC's expense. Note: "appropriate times" indicates that the repairs will be made 1) at a time when access is needed and 2) when damage to adjacent plants will be minimized. In any case, crop production will be maintained during and after mining. OVCC believes that there will be no effect on the crop production as a result of mining. This fact is supported by a paper written by Dr. Frank H. Himes, Ph.D., entitled "Agronomic Evaluation of the Land in the Southern Ohio Coal Company Area," June 1983. A copy is included in this addendum.

PARAGRAPH REMOVED
DUE TO CONTRACT
WITH OGILBEE FAMILY.
FOR REPAIR OF OR
COMPENSATION FOR
DAMAGE TO THE
SURFACE OWNER'S
STRUCTURES.

After mining, all structures on the farm will be repaired or replaced as required. OVCC will make use of identical materials to make repairs. All structures will be returned to their pre-mining condition in all ways, including color, construction, and composition. Structures damaged beyond repair will be replaced with identical construction.

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SECTION OF PARAGRAPH
REMOVED DUE TO
CONTRACT WITH
OGILBEE FAMILY

Affected water supplies will be subject to the provisions found in the Addendum to Part 2, Page 14F. In the long term, permanent water supplies will consist of re-drilled wells, re-developed springs, new or repaired cisterns, re-dug ponds, or with county water. ~~If county water is used, a single, lump sum cash amount will be deposited in the Ogilbee's bank. The sum shall be sufficient to provide enough interest to pay for the cost of county water. The lump sum will belong to the Ogilbee's when deposited in the bank. A combination of these provisions may be required.~~

It is estimated that the dairy farm uses 5500 gallons of water per month for each of the three families that reside there. Also, the 110 cows (70 now, 40 additional planned for next year) and 258 hogs consume approximately 204,000 gallons of water per month. During phone conversations with the Belmont County Sanitary Sewer District Director, he indicated that this demand, plus the additional demand from farms and residences on Ogilbee Road, could easily be met from the County water system. The Director also indicated that even in any previous severe drought situation, Belmont County has never denied water to any farmer.

It is the intent of OVCC to offer landowners equitable options as outlined above in order to restore the reasonable foreseeable use of the land and facilities.

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PERMIT REVISION APPLICATION CHECKLIST

Name of Permittee Ohio Valley Coal Company
 Permit # D-0360
 Reviewed by M. Nishimura & SE, Date 1-10-91

<u>YES</u>	<u>NO</u>	
<u>✓</u>	<u> </u>	1. Permittee Name
<u>✓</u>	<u> </u>	2. Address
<u>✓</u>	<u> </u>	3. Permit Number
<u>✓</u>	<u> </u>	4. Section of mining and reclamation plan to be revised.
<u>✓</u>	<u> </u>	5. Description of Revision
<u> </u>	<u>✓</u>	6. Will this revision constitute a significant alteration from the mining and reclamation operations contemplated in the original permit? Yes, <u> </u> No.

If the response to item 6 is answered "yes" are the following items appropriately addressed.

<u>YES</u>	<u>NO</u>	
<u> </u>	<u>✓</u>	7. Application includes name and address of newspaper in which public notice is published.
<u> </u>	<u>✓</u>	8. Text of public notice contains all information required by 1501: 13-5-01(B)(1).
<u> </u>	<u>✓</u>	9. Application includes name and address of the public office where this application is to be filed for public viewing.
<u> </u>	<u>✓</u>	10. Applicant has submitted copy of proof of publication.

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R-0360-7

January 9, 1991

RECEIVED

JAN 10 1991

DIVISION OF
RECLAMATION

Mr. Tim L. Dieringer, Chief
Division of Reclamation
Ohio Department of Natural Resources
Fountain Square
Columbus, Ohio 43224

Dear Mr. Dieringer:

Find enclosed an Application to Revise Permit (ARP) D-0360. This ARP removes the details of maintaining the Ogilbee Dairy Farm from permit revision R-0360-2. The Ohio Valley Coal Company has entered into an agreement with the Ogilbee Family. They have taken full responsibility of all aspects of maintaining the dairy during mining, including repairing cracks prior to working their fields.

I have resubmitted the Addendum to Part 3, Page 26, J with the details crossed out where appropriate. A note is shown to explain each item.

If you have any questions, please contact me. The farm buildings will be undermined during the week of January 14. Your prompt consideration in this matter would be greatly appreciated.

Sincerely,

THE OHIO VALLEY COAL COMPANY

David L. Bartsch

David L. Bartsch, P.E.
Project Engineer

DLB:pm

Enclosures

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56854 PLEASANT RIDGE ROAD • ALLEDONIA OHIO 43902 • (614) 926-1351

TOVCC 07426